

IN THE ABSTRACT

Please delete the Abstract in its entirety as filed,  
and substitute the Abstract, as follows:

--A method of performing an assay process is provided comprising the steps of: providing microbeads in a solution; placing the microbeads on an alignment substrate; reading codes of the microbeads and the position thereof on the alignment substrate; reading the fluorescence on each microbead and the position thereof on the alignment substrate; and determining an assay result based on bead position and bead code of the earlier reading steps. The microbead includes an encoded particle having a particle substrate; at least a portion of the substrate being made of a substantially single material and having at least one diffraction grating embedded therein, the grating having a resultant refractive index variation within the single material at a grating location; and the grating providing an output optical signal indicative of a code when illuminated by an incident light signal propagating in free space, the output optical signal being a result of passive, non-resonant scattering from the grating when illuminated by the incident light signal.--.